

AMENDMENTS TO THE CLAIMS:

Please amend the claims as follows:

1. (Currently Amended) A method of detecting X-rays for obtaining improved radiographic images ranging from about 10keV to about 50keV, comprising the steps of:

orienting a semiconductor radiation detector having a height greater than its thickness, said detector comprising a substrate and pixel sensors formed as strips,

wherein said orienting step further comprises selecting an acute angle between a direction of incident radiation and a side of said detector having said height such that said incident radiation mainly hit the side of said radiation detector, said angle being selected to ~~be less than about ten degrees~~ range from approximately three degrees to approximately ten degrees thereby assuring achievement of x-ray energy detection efficiency ranging from approximately 90 percent to approximately 85 percent, respectively,

arranging a collimator substantially perpendicular to said incident radiation and spaced apart from said detector, and

excluding at least one section of said hit area between at least one edge of said detector and at least one active sensor area by means of said collimator, wherein substantially all of the energy of the radiation is dissipated within the detector.

2. (Previously Amended) The method according to claim 1, further comprising the step of collimating using a collimator with a collimator slot to prevent the incident radiation from hitting the edge of the detector.

3. (Previously Amended) An apparatus for detection of incident radiation in radiographic imaging applications ranging from about 10 keV to about 50 keV, the apparatus comprising:

an X-ray detector able to be oriented relative to the incident radiation, said detector having a plurality of semiconductor X-ray strips arranged on a substrate, said detector being of sufficient height such that substantially all of the incident radiation dissipates within said detector,

electrical outputs for each of the strips, and

electrical connections between each of the semiconductor X-ray strips such that the output corresponding to corresponding points in each of the strips is combined,

means for orienting said X-ray detector relative to the incident radiation at an acute angle between a direction of said incident radiation and a side of said detector of said sufficient height such that incident radiation mainly hits the side of said detector, said angle ~~being ranging from approximately three degrees to approximately ten degrees thereby assuring achievement of x-ray energy detection efficiency ranging from approximately 90 percent to approximately 85 percent, respectively less than ten (10) degrees~~, and

a collimator arranged substantially perpendicular to said incident radiation, and apertures arranged spaced apart from said side hit by said incident radiation, said apertures excluding at least one section of said detector between at least one edge of said detector and at least one active sensor area from the incident radiation.

4. (Original) An apparatus according to claim 3 wherein said detector has a guard ring to sink leak current.

5. (Canceled)

6. (Original) An apparatus according to claim 3 wherein said apparatus further comprises a collimator having a collimator slot for preventing the incident radiation from hitting the edge of the detector.
7. (Original) An apparatus according to claim 6 wherein said apparatus comprises several detectors, each having a collimator slot placed side by side.
8. (Original) An apparatus according to claim 7 further comprising an absorber placed between said detector for preventing scattering from one detector to another.
9. (Original) An apparatus according to claim 3 wherein said detector is made of silicon.
10. (Original) An apparatus according to claim 3 wherein said detector is made from the group consisting of gallium arsenide or CdZnTe.
11. (Previously Amended) An apparatus according to claim 3 wherein said detector is able to be oriented such that said incident radiation hits a backside of said detector.
12. (Previously Amended) An apparatus according to claim 3, wherein the apparatus is used in scanned-slot medical imaging for detection of incident radiation.
13. (Previously Amended) An apparatus according to claim 12, wherein the use for said medical imaging is selected from the group consisting of mammography, bone densitometry and non-destructive testing.